

A NEW SPECIES AND NEW GENERIC SYNONYM  
OF THE NEARCTIC CADDISFLY GENUS  
*HOMOPLECTRA* (TRICHOPTERA:  
HYDROPSYCHIDAE)<sup>1,2</sup>

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ABSTRACT: The caddisfly genus *Aphropsyche* Ross is recognized as a junior synonym of *Homoplectra* Ross. *Homoplectra flinti* n.sp., from Wayah Bald in the Nantahala National Forest of North Carolina, is described and figured. The male and female adults are compared with those of other known eastern species of the genus, *H. doringa* (Milne), n. comb. and *H. monticola* (Flint), n. comb. Female genitalia of eastern North American species of the genus are figured. A species checklist of *Homoplectra* is provided.

Examination of caddisflies recently collected in the Nantahala National Forest in the Appalachian Mountains of North Carolina revealed a new species of *Homoplectra* Ross. The discovery of this species and subsequent comparison of it with the other known members of *Homoplectra* made necessary a reconsideration of the genus *Aphropsyche* Ross.

*Homoplectra* Ross

*Homoplectra* Ross 1938: 119, pl. 12 fig. 7 (male), type species *alseae* Ross 1938, original designation.

*Aphropsyche* Ross 1941: 78, pl. 8 fig. 60 (wings, male), type species *aprilis* Ross 1941 (syn. of *doringa* Milne 1936) original designation. NEW SYNONYM.

Ross (1938) described the genus *Homoplectra*, stating that it was "most closely related to *Diplectrona*." Since then seven additional species have been placed in the genus, all from the western Nearctic region (see species checklist below). Later Ross (1941) described the genus *Aphropsyche*, from the eastern Nearctic region, and also mentioned that *Diplectrona* was "its closest ally." An additional species from the East was placed in this genus by Flint (1965). In an attempt to assign a new species to the correct genus, I observed that the characters by which Ross defined these two genera are not unique. The only unique characteristic of each genus was its Nearctic distribution, being either eastern, for *Aphropsyche*, or western, for

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*Homoplectra*. This distinction does not seem adequate when members of these genera exhibit the following characters:

1. Wing venation (Fig. 5, Ross 1944, fig. 333) has the postcostal cell short and wide, similar to that of Arctopsychinae (Schmid 1980). 2. The head has the posterior dorsal warts large, anterior dorsal warts small. 3. Antennae are short and thick, as in Arctopsychinae (Schmid 1980), not long and slender as in *Diplectrona* and other hydropsychids. 4. The scent gland of abdominal sternite V bears a fingerlike lateral process (Fig. 1E, Denning 1965, fig. 12A) which is not long and slender as in *Diplectrona* (Schmid 1980, figs. 151, 152). 5. Male inferior appendages are long and slender, as in all other Hydropsychidae except the Arctopsychinae, but with their second articles reduced. 6. Male abdominal segment IX is slanted in lateral view, with its sternum recessed anteriorly within segment VIII, its tergum protruding posteriorly and its pleuron narrow. 7. The male phallus is complex, with several processes arising from its phallobase, numbered 1-5 by Ross (1938): (1) a superior pair of asymmetrical acuminate processes (absent in some species); (2) a dorsal pair of long spiniform rods; (3) a middle pair of processes sometimes long and slender or reduced to short barbs; (4) a single central rod bearing the gonopore at its apex; and (5) a ventral process with a bifid apex and shaped like a trough, holding the other processes in place. The large bulbous phallobase extends anteriorly beyond the anterior margin of segment VIII.

Currently there is no key available by which the genera *Aphropsyche* and *Homoplectra* can be separated. Ross (1944) did not include the genus *Homoplectra* in his key or hydropsychids. Denning (1956) modified Ross's key for adults by including *Homoplectra*, but his distinction was based on an inaccurate wing venation character, *Sc*2 fused with *R*1, mentioned by Ross (1938); the wings of *Homoplectra* were not figured by Ross or Denning. Furthermore, the larvae of known species of these genera share a number of morphological characters and occur in similar habitats, mountain seeps and small streams (Wiggins 1977, Weaver *et al* 1979). It is uncertain that these genera can be defined by larval characters because not all larvae of each are known. Thus, there are no reliable characters known that can uniquely define *Aphropsyche* and *Homoplectra*. The homologous condition of the male phallus clearly suggests that members of these genera together represent a monophyletic group. However, the evidence needed to suggest monophyly of each genus is not apparent. Therefore, I believe that the genus *Aphropsyche* should be recognized as a junior synonym of *Homoplectra*.

**Phylogenetic Considerations.** It is also doubtful that *Homoplectra* should be included in the subfamily Diplectroninae, as shown in the following interpretation of the diversification of the Hydropsychidae: The first hydropsychid ancestor probably gave rise to: (1) a lineage ancestral to the arctopsychins (presently monophyly of the Arctopsychinae cannot be supported by apomorphies); and (2) a lineage ancestral to the other hydropsychids, having apomorphic inferior appendages slender and long. This second lineage gave rise to: (3) the ancestor of *Homoplectra*, having

plesiomorphic antennae thick and anterior wing with postcostal cell short and wide, as in the arctopsychins, and apomorphic male genitalia (mentioned above); and (4) a branch ancestral to other hydropsychids, including Hydropsychinae, Macronematinae and Diplectroninae (except *Homoplectra*), having apomorphic antennae slender and anterior wing with postcostal cell long and narrow. Hence, the Diplectroninae appear to be paraphyletic.

#### Species Checklist of *Homoplectra*

*alseae* Ross 1938, Oregon.

*doringa* (Milne 1936) (*Diplectrona*) Flint 1966 (*Aphropsyche*), Indiana, Kentucky, Massachusetts, North Carolina, New Hampshire, Tennessee, Virginia. NEW COMBINATION.

*aprilis* (Ross 1941) (*Aphropsyche*): syn., Flint. 1966.

*flinti* Weaver, new species, North Carolina.

*luchia* Denning 1966, Oregon.

*monticola* (Flint 1965) (*Aphropsyche*), Pennsylvania, Virginia. NEW COMBINATION.

*nigripennis* (Banks 1911) (*Diplectrona*), California.

*norada* Denning 1975, California.

*oaklandensis* (Ling 1938) (*Diplectrona*), California.

*schuhi* Denning 1965, Oregon.

*shasta* Denning 1949, California.

*spora* Denning 1952, California.

#### *Homoplectra flinti*, new species

This is the eleventh species placed in the genus *Homoplectra*. It differs from the other eastern Nearctic species, *H. doringa* and *H. monticola*, by having the apex of the male inferior appendage bilobed in dorsal view and the anterior margin of the female segment IX shaped like the bow of a boat in lateral view. However, based on the similarities of the male phallus, it appears to be more closely related to *H. spora* from California. *H. flinti* differs from this species by lacking the posterior dorsal hook of male segment X in lateral view.

Male (Fig. 1). Forewing black, length 9-10 mm. Head, thorax and abdomen with black sclerites. Abdominal sclerite V with scent gland bearing finger-like process (Fig. 1E). Genitalia (Fig. 1A-D). Sternum IX recessed into segment VIII and tergum IX projected posteriorly and fused with segment X. Segment X without the posteroventral hook exhibited by *H. doringa* in lateral view, instead with a pair of short truncate posterior mesal processes in dorsal view. Phallus complex (Fig. 1B-C), bearing several processes arising from the phallobase, numbered according to homologous structures in *Homoplectra* as noted by Ross (1938): (1) superior asymmetrical process absent (It is present in several western species.); (2) long pair of dorsal spiniform rods; (3) short pair of ventral barbs; (4) long central rod bearing gonopore at its apex; and (5) long ventral trough with deep mesal slit and broader obtuse mesal notch, lateral corners acute. Inferior appendage long slender, slightly clavate in lateral view, with a ventromesal apical lobe in dorsal view.

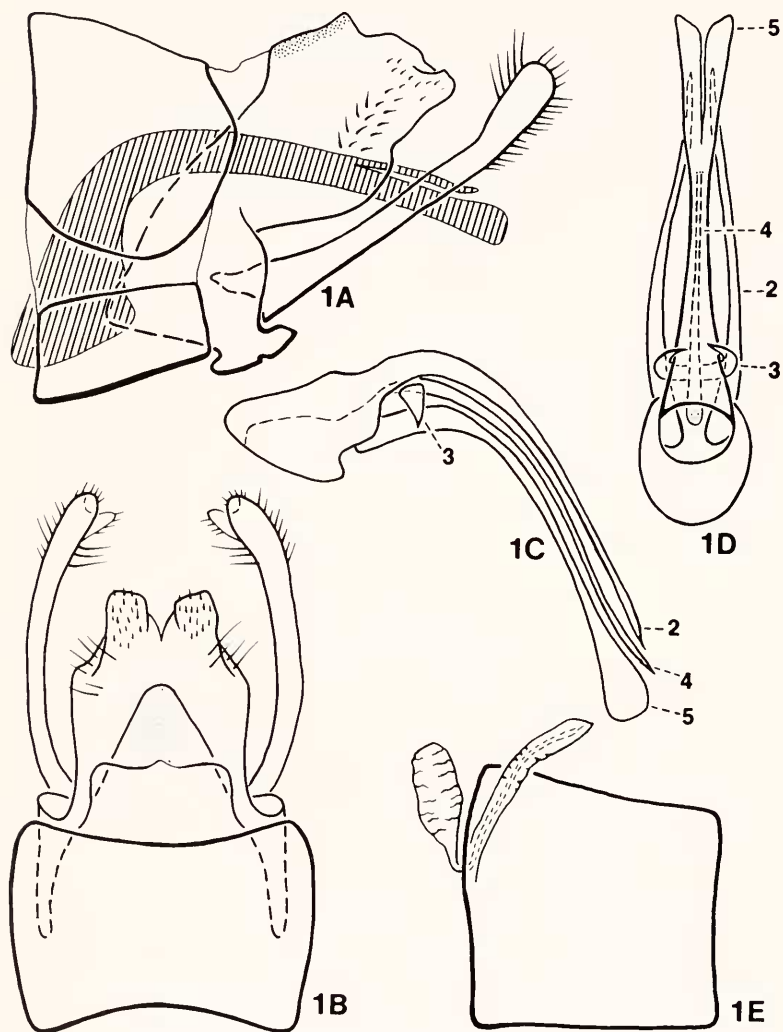
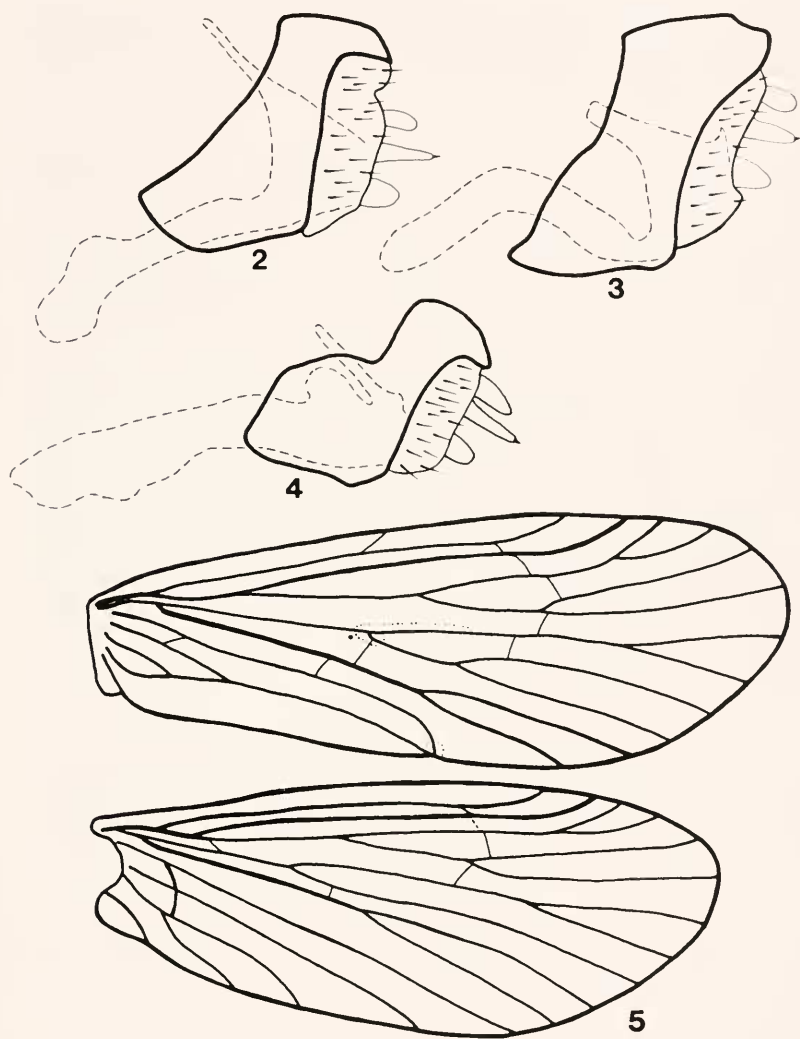


Figure 1. *Homoplectra flinti*, new species, male: 1A. genitalia, abdominal segments VIII, IX, X, lateral view. 1B. genitalia, segments VIII, IX, X, dorsal view. 1C. phallus, lateral view. 1D. phallus, dorsal view, process 4 incomplete. 1E. scent gland of sternite V, lateral view.



Figures 2-5. *Homoplectra* spp. 2-4. Females of eastern Nearctic *Homoplectra*, genitalia, abdominal segments IX, X, lateral view: 2. *H. flinti*, new species. 3. *H. monticola* (Flint). 4. *H. doringa* (Milne). 5. *H. alseae* Ross, wings, male.

Female (Fig. 2). Sternum IX with anterior margin shaped like the bow of a boat, having dorsal and ventral margins smoothly curved in lateral view. The female genitalia of other eastern species, *H. monticola* and *H. doringa*, can be distinguished from this species: the anterior margin of sternum IX in lateral view is more acute in *H. monticola* (Fig. 3) and is more oblong in *H. doringa* (Fig. 4).

**Material Examined.** Holotype ♂: North Carolina, Macon Co., Wayah Bald, Robin Branch, elev. 4700'. 12 June 1983, sweeping, J.S. Weaver (JSW) & R.W. Holzenthal (RWS). Paratypes: Same locality as holotype, 1 ♂, 4 ♀, 4-25 June 1983, Malaise trap, JSW & P.J. Sieburth, 1 ♂, 4 ♀ (1 dead ♀ under stone), 12 June 1983, sweeping, JSW & RWH; 2 ♂, 2 ♀, 8 June 1984, JSW & J.C. Morse; Wayah Bald, Dirty John Creek, 1 ♂, 18 May 1983, sweeping, B.C. Kondratieff. Holotype ♂ and paratype ♀ deposited at Smithsonian Institution, Natural Museum of Natural History, 2 ♂ and 2 ♀ paratypes deposited at Clemson Insect Museum, 1 ♂ and ♀ paratypes deposited at the Illinois Natural History Survey and other paratypes in author's collection.

**Habitat.** Most adults were collected near a small seep of Robin Branch, Wayah Bald. A predominant vascular plant in the seepage area was grass of parnassus, *Parnassia asarifolia*. One dead female specimen was collected under a stone in the seep, probably after ovipositing its eggs, as a large eggmass was located on the same stone. Interestingly, several larvae matching the description of *Oropsyche?* (Wiggins 1977) were collected in the same seep. This suggests that the larva of *Homoplectra flinti* may be the larva described by Wiggins as *Oropsyche?* (also collected at Wayah Bald). However, I also collected adults of *Oropsyche howellae* just below the seep area at Robin Branch. Thus, the larval identity of these species remains uncertain and will require further research.

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## SOCIETY MEETING OF FEBRUARY 20, 1985

The third regular meeting of The American Entomological Society was held on Wednesday evening, February 20, at the Academy of Natural Sciences, 1900 Race St., Philadelphia, PA. The meeting was called to order by President Mason.

The report of the Nominating Committee was given by Bill Day. The following slate of officers was presented:

President: Roger W. Fuester, Vice President: Joseph K. Sheldon, Recording Secretary: Ronald F. Romig, Corresponding Secretary: Harold B. White, Treasurer: Jesse J. Freese.

Nominations from the floor were requested, but none received. The slate was elected by unanimous vote to serve for a two-year period.

There was no new or old business to conduct.

The next meeting was announced. It will be held at the University of Delaware on March 20. Dr. T.L. Spillman of the U.S. National Museum will speak on Thomas Say: The Father of American Entomology and Two Utopias in the Wilderness.

There are no local notes of entomological interest. It seems that winter is still lord of the environment.

The guest speaker was Mrs. Carol M. Spawn, Academy Manuscript Librarian/Archivist who spoke on the archival material of the American Entomological Society in the Academy library. As the oldest continuously active Entomological Society in North America, our heritage is rich. Her talk touched on such matters as: What is an archival collection; how is it prepared; and of what use is it (Archives are the raw material of history). Numerous examples of old documents and books were displayed in this most interesting and informative talk.

Joseph K. Sheldon  
Vice President